

REMARKS

The Office action of 26 December 2007 (Paper No. 20071217) has been carefully considered.

Claim 17 is canceled without prejudice or disclaimer, claim 15 is amended as indicated above, and claim 16 is amended only to indicate that it was “previously presented”. Thus, claims 1 thru 16 and 18 thru 21 are pending in the application.

On page 2 of the Office action, the Examiner objected to claims 16 and 17 because they are labeled “Withdrawn”. As mentioned above, claim 17 is being canceled without prejudice or disclaimer, and claim 16 is being amended to indicate that it was “previously presented”. Therefore, the objection should no longer apply.

On page 2 of the Office action, the Examiner rejected claims 15 thru 17 and 21 under 35 U.S.C. §103 for alleged unpatentability over Burroughes *et al.*, British Patent Publication No. 2 349 979 in view of Winters *et al.*, U.S. Patent No. 6,737,800 and Morita *et al.*, U.S. Patent No. 6,750,087. For the reasons stated below, it is submitted that the invention recited in the claims, as now amended, is distinguishable from the prior art cited by the Examiner so as to preclude rejection under 35 U.S.C. §103.

Independent claim 15 was previously amended to recite that each of the anode electrodes of the red, green and blue unit pixels includes a first film having a high reflectivity and forming a first anode, and a second film for adjusting a work function and forming a second anode. Furthermore, independent claim 15 was also previously amended to recite that the second anode of at least one unit pixel of the red, green and

blue unit pixels has a thickness different from thicknesses of the second anodes of other unit pixels of the red, green and blue unit pixels. In addition, claim 15 was previously amended to recite that the first and second anode electrode materials are patterned by using photosensitive film patterns having thicknesses different from each other, depending upon the red, green and blue unit pixels. Finally, claim 15 is now being amended to include the recitation of dependent claim 17, which is being canceled, so that claim 15 now recites that a thickness of the second anode of the red unit pixel is in a range of one of 250 to 450Å and 700 to 750Å, that a thickness of the second anode of the green unit pixel is in a range of one of 50 to 150Å and 200 to 300Å, and that a thickness of the second anode of the blue unit pixel is in a range of 50 to 150Å.

Dependent claim 16 was previously amended so as to recite that the second anode of the red unit pixel is thicker than the second anodes of the other unit pixels.

It is respectfully submitted that, as a result of these amendments, the invention recited in independent claim 15 is distinguishable from the prior art cited by the Examiner so as to preclude rejection under 35 U.S.C. §103, while dependent claim 16 provides a further basis for distinguishing the invention from the cited prior art.

Specifically, Burroughes *et al.* '979 does not disclose or suggest a method for fabricating an organic electroluminescent display wherein: (1) etching of first and second anode electrode materials results in the formation of anode electrodes of red, green and blue unit pixels, wherein each of the anode electrodes of red, green and blue unit pixels includes a first film having a high reflectivity and a second film for adjusting a work function; (2) the first and second films contained in the anode electrodes of red, green and

blue unit pixels form a first anode and a second anode, respectively, in red, green and blue unit pixels; (3) the second anode (or second film for adjusting a work function) of at least one unit pixel of red, green and blue unit pixels has a thickness different from thicknesses of the second anodes (or second film for adjusting a work function) of other unit pixels of red, green and blue unit pixels; and (4) the first and second anode electrode materials are patterned by using photosensitive film patterns having thicknesses different from each other, depending upon red, green and blue unit pixels.

In the latter regard, it should be noted that, when anode electrodes having different thicknesses are formed, the effects of process simplification and yield improvement are produced, since an additional process is excluded. The cited art does not disclose or suggest this feature or the advantage thereof.

On page 2 of the Office action, the Examiner alleges that Burroughes *et al.* '979 discloses the disposition sequentially of a first anode material and a second anode material, followed by masking and etching the first and second anode materials to isolate and form anode electrodes of different pixels. However, in the sentence bridging pages 3 and 4 of the Office action, the Examiner admits that "Burroughes does not exemplify red, green and blue unit pixels (which is very well known in the art for multi-color display) and the second anode of at least one pixel having a thickness different from the thickness of the second anodes of other unit pixels of red, green and blue unit pixels" (quoting from page 3, last line-page 4, line 3 of the Office action). As a result, the Examiner cites Winters *et al.* '800 as allegedly disclosing "the thickness of the second anode electrode 112a in one pixel (red pixel) is different from the thicknesses of the second anodes 112b, 112c of other unit pixels of green and blue" (quoting from page 4, lines 10-12 of the

Office action).

However, Burroughes *et al.* '979 does not contain a disclosure, and the Examiner has not cited any disclosure, which would instruct or motivate a person of ordinary skill in the art, upon reviewing Burroughes *et al.* '979 as of the date of the present invention, to seek and obtain the disclosure of Winters *et al.* '800, and to modify the disclosure of Burroughes *et al.* '979 in accordance therewith. The only reason that the Examiner has been able to do so is that the Examiner, unlike one of ordinary skill in the art as of the date of the invention, has had the benefit of reviewing the present application and has used the knowledge or guidance obtained from that review to seek and obtain the disclosure of Winters *et al.* '800, and to combine it with that of Burroughes *et al.* '979.

Furthermore, Winters *et al.* '800 does not disclose or suggest etching of first and second anode electrode materials to form anode electrodes. In fact, whereas Winters *et al.* '800 states that the “thicknesses of the first transparent electrode 112 can then be reduced in the region of other pixel colors by well known photolithography and etching processes” (quoting from column 18, line 67-column 19, line 1 of the patent), Winters *et al.* '800 also states that “[i]t is an object of the present invention that the layers of the organic EL media 120 not require any patterning between and around the pixels, and therefore these layers cannot be varied in thickness for different color pixels … [and] only the thickness of the first transparent electrode is varied for pixels of different colors” (emphasis supplied -- quoting from column 18, lines 50-56 of the patent). This indicates that only the first transparent electrodes 112a, 112b and 112c (the “second anode electrode” according to the Examiner’s analysis at page 3, line 18 of the final Office action) are subjected to etching in Winters *et al.* '800, and that the other

electrodes, including the reflective layer 102 (the “first anode electrode” according to the Examiner’s analysis at page 3, lines 17-18 of the final Office action), are not subjected to etching.

Thus, Winters *et al.* ‘800 does not disclose or suggest the etching of first and second anode electrode materials to form anode electrodes, each including a first film having a high reflectivity and a second film for adjusting a work function, as recited in claim 15. Therefore, even if the disclosure of Winters *et al.* ‘800 is properly combined under 35 U.S.C. §103 with that of Burroughes *et al.* ‘979, it cannot be said that the method recited in independent claim 15 is obtained as a result. Furthermore, as stated above, it is highly doubtful that one of ordinary skill in the art, upon reviewing the disclosure of Burroughes *et al.* ‘979, would be motivated or instructed to seek and obtain the disclosure of Winters *et al.* ‘800 so as to modify the disclosure of Burroughes *et al.* ‘979 in an effort to obtain the claimed invention. Again, it is respectfully submitted that the only reason that the Examiner has been able to arrive at the combination of the two references is that the Examiner, unlike one of ordinary skill in the art as of the date of the invention, has had the benefit of reviewing the disclosure of the present application, and has utilized the knowledge gained from the disclosure of the present application in order to arrive at the combination of references cited under 35 U.S.C. §103.

In the first complete paragraph on page 5 of the Office action, the Examiner admits that Burroughes *et al.* ‘979 and Winters *et al.* ‘800 “are silent about the first and second anode materials patterned by using photosensitive film patterns having thicknesses different from each other depending upon the red, green and blue unit pixels” (quoting from page 5, lines 4-7 of the Office action). However, in that regard, the following

should be considered.

Specifically, Winters *et al.* '800 states (at column 18, lines 50-56 of the patent) that an object of the invention of the patent is that there not be any requirement for "patterning between and around the pixels", that the layers not "be varied in thickness for different color pixels", and that "only the thickness of the first transparent electrode" be "varied for pixels of different colors" (emphasis supplied -- *see* column 18, lines 50-56 of Winters *et al.* '800). Thus, Winters *et al.* '800 teaches away from patterning of both the first and second anode electrode materials, and it also teaches away from patterning by using photosensitive film patterns having thicknesses different from each other, depending upon red, green and blue unit pixels, as recited in independent claim 15.

Finally, none of the references, either alone or in combination, discloses or suggests the method wherein a thickness of the second anode (or second film) of the red unit pixel is in a range of one of the two ranges previously recited in claim 17, and now recited in claim 15, wherein a thickness of the second anode (or second film) of the green unit pixel is in a range of one of the two ranges now specifically recited in claim 15, and wherein a thickness of the second anode (or second film) of the blue unit pixel is in the range also now specifically recited in claim 15.

In the Office action, the Examiner states that Winters *et al.* '800 discloses (in columns 16 and 17) equations for calculating thickness of layers. However, Winters *et al.* '800 does not disclose use of those equations to obtain the specific thickness ranges of second anodes of red, green and blue unit pixels, as now recited in claim 15.

The Examiner also argues that, where the general conditions of a claim are disclosed in the prior art, discovery of the optimum or workable ranges involves only routine skill in the art. However, as stated above, in this case, the prior art does not disclose the general conditions of independent claim 15 (or dependent claims 16 and 21). Moreover, Winters *et al.* '800 does not make any specific reference to use of an equation to derive specific ranges of thickness for second anodes of red, green and blue unit pixels, as now recited in claim 15.

Finally, such thickness ranges lead to significant improvement in performance of organic electroluminescent displays fabricated by the claimed method, as disclosed in the specification of the present application.

Thus, one of ordinary skill in the art, upon reviewing the disclosures of Burroughes *et al.* '979 and Winters *et al.* '800, would not be motivated to seek the disclosure of Morita *et al.* '087 in order to obtain the invention. It is respectfully submitted that the only reason that the Examiner has been able to arrive at the combination of the three references is that the Examiner, unlike one of ordinary skill in the art as of the date of the invention, has had the benefit of reviewing the disclosure of the present application, and has utilized the knowledge gained from the disclosure of the present application in order to arrive at the combination of the three references cited under 35 U.S.C. §103.

As mentioned above, dependent claim 16 provides a further basis for distinguishing the invention from the cited prior art. That is to say, none of the references discloses or suggests a second anode (or second film) of the red unit pixel

being thicker than the second anode (or second films) of the other unit pixels, as recited in dependent claim 16. In that regard, on page 4 (lines 13-14) of the final Office action, the Examiner contends that Winters *et al.* '800 discloses that film 112a is thicker than the other films in Figure 3, but it is not clear that the film 112a of Winters *et al.* '800 corresponds to a red pixel.

Therefore, dependent claim 16 further distinguishes the invention from the cited prior art so as to preclude rejection under 35 U.S.C. §103.

In view of the above, it is submitted that the claims of this application are in condition for allowance, and early issuance thereof is solicited. Should any questions remain unresolved, the Examiner is requested to telephone Applicants' attorney.

No fee is incurred by this Amendment.

Respectfully submitted,



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